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ABSTRACT

Educators must prepare students for jobs in the information workplace; as employees, they must recognize advantages of the changes to their future employment and adopt new approaches to teaching. Restructuring the organization around information is something that is now being, or will have to be, done by all businesses. A worker's primary activities increasingly include gathering, creating, manipulating, storing, and distributing information related to products, services, and customer needs. Educators must teach information technology workers work skills that are multiple, interrelated, and often performed simultaneously. Business and industry need workers prepared with and able to demonstrate information-related skills in four critical areas. Information technology workers must do the following: develop skills and attitudes that embrace change; adapt to and accept alternative work systems; refine intercultural business communication skills; and use communication networks effectively and stay current. Information, technology, and communication advances are the driving forces behind redefining educators' roles and the learning modalities they use to deliver instruction. Teachers must use computers as a tool and place greater emphasis in multimedia and distance learning. Business educators must be up to date on using electronic information and technologies and learning modalities and committed to the need for students to locate, assess, and apply information, not just to remember things. (YLB)

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The Information Workplace: Training the InfoTech Worker Issues and Instructional Delivery Examined

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The Information Workplace: Training the InfoTech Worker

Issues and Instructional Delivery Examined

An unprecedented interplay of technological, demographic, and global economic forces is shaping the nature of work in America and redefining the American workplace and the role of its workers. The workplace is experiencing a new facelift. As educators, we need to prepare our students for information jobs in a work environment that reflects anything but "business as usual." As employees in a school system, we must recognize the advantages of these changes to our future employment and facilitate new approaches to our teaching methods. After all, we are InfoTech (Information Technology) workers too!

Issues Surrounding the Information Workplace

As organizations view themselves as holistic and interconnected systems with each person accountable for the results of the organization, the degree of preparedness expected of all workers (including educators) is rising dramatically!

Restructuring the organization around *information* is something that is now or will, of necessity, have to be done by *all* businesses. As a result, a worker's primary activities increasingly include gathering, creating, manipulating, storing, and distributing information related to products, services, and customer needs. The work skills we need to teach InfoTech workers are multiple, interrelated, and often performed simultaneously.

We can already see some significant trends emerging, such as:

1. "Virtual organizations" are replacing traditional companies with collaborative networks.
2. InfoTech workers are doing more of their job through an intermediary, such as a personal computer or expert system.
3. Key technologies, such as networks, imaging technology, massive data storage systems, and artificial-intelligence systems are reshaping today's occupations and becoming vital tools for InfoTech workers.
4. Organizations are redesigning computer-based jobs to take advantage of telecommunications, computer monitoring, and networking.
5. Lifetime jobs are becoming a thing of the past. As permanent jobs become more and more temporary, temporary jobs are becoming more and more permanent. To stay flexible in times of rapid change, no company can afford to staff *all* the people for *all* the things a competitive company needs to do. Therefore, a temporary, multiskilled, adaptable worker who is tooled with many different abilities is the one who has an improved chance of finding employment in the future.

Information-Related Workplace Skills--A Mixed Bag

Given these trends and realities of the day, what are the information-related skills business and industry need workers to come prepared with and be able to demonstrate? It's a mixed bag, but four critical areas of need are identified on the pages that follow. The InfoTech worker must:

1. Develop skills and attitudes that embrace change.

2. Adapt to and accept alternative work systems.
3. Refine intercultural business communication skills.
4. Use communication networks effectively and stay current.

Develop Skills And Attitudes That Embrace Change

In the redefined workplace, the operative word is *change*. Traditionally, dealing with changes at work was merely a matter of learning new skills, which were generally just added onto the existing ones. None of it was easy, but it did not require that we completely retool the most basic element in the workplace--*ourselves*.

The new organizational roller-coaster ride can create confusion and disorientation at *all* levels of management and operations. There are no safe havens, no stable industries, and no occupational ranks in which "business as usual" can be counted upon. Workers need the ability to change with the changes and even to *create change*. To some, emerging workplace practices are liberating; to others, these changes are simply frightening.

While all change involves some loss, the *resilient* worker views change as opening up new opportunities for gain. Resilient workers succeed in times of chaos because they manage to turn the situation "inside out" and find some personal advantages in it. People who like to deal with ambiguity, who do not need structure or a well-defined job, are in high demand in business. They are those who can survive change and *still* enjoy their work.

Adapt To and Accept Alternative Work Systems

The traditional office layout and design has a new look. Many workers are performing their jobs by increasingly dividing their time between a central office, a home office, and a suburban satellite office. New office patterns require companies to judge people by what they do, *not* by where they spend their time. Three examples of new office patterns include:

1. *"Non-territorial" offices*, which are places where workers do not have desks to call their own; instead, they share desks
2. *"Think tank" areas*, which are small offices equipped with a computer, but no telephone, and are for the employee who just wants to be left alone to do intense, individual work.
3. *Hotel-style check-in offices* that have fold-down temporary desks for the employee who is indeed a "road warrior" and spends most of his or her time on the road conducting business.

These new office patterns have come about in large part because organizations are *restructuring around information*. Alternative work systems, however, have come about because employees' work expectations, values, and lifestyles have changed. These work systems, also called nontraditional working arrangements, are expanding in use and include the compressed workweek, office sharing, job sharing, and telecommuting.

Refine Intercultural Business Communication Skills

Communication is the basis of all our relationships. We need other people, and our connections to others are forged by communication. Each day we spend about 70 percent of our waking hours communicating--speaking, listening, reading, and writing.

Increasingly workers need the ability to communicate effectively with international counterparts. Global events do not happen in a vacuum, but in a social, political, cultural, and economic context. The more international business becomes, the more important it is to recognize differences among people from different cultures because *these differences affect good communication.*

For those reasons, workers in the US (and the students we teach today) need to study intercultural communication issues. They need to be able to recognize negotiating strategies, frequently used international business documents, and the basis for occasional intercultural misunderstandings. Specifically, the global InfoTech worker needs to know something about the religious beliefs, social customs, etiquette, business philosophy, and family structure of the major trading nations.

Use Communication Networks Effectively and Stay Current

Businesses have long sought to improve the ways their employees work together, gain access to information, and operate outside the office. Information movement and management, as well as transmitting and receiving information, is vital to American business.

The ideal way for people to work is to be able to say at any time, "I need some information." They will not care whether the information is on a CD-ROM disk, a

company file server, or thousands of miles away in some central repository. They will simply import the needed information and go on staying in touch with data or information *whenever* and *wherever* they wish.

The well-connected office in the future will allow for networks to keep all of a company's data at its fingertips regardless how much or how fast the business expands. Such new forms of communication and cooperation go under various names, from "virtual networking" and "telecommuting" to "spider-web organizations" and "virtual workers."

Virtual workers, for example, dial into the company's database and become an extension of the company connected by computers, fax machines, and other technologies. One scenario is when a customer calls in, all information about that customer is flashed on the computer screen of the distant worker, wherever he or she is located. To customers, the process is "transparent" and they are unaware of who, where, or how they are being served. Those widely scattered workers can operate as if they were physically located at company headquarters.

What is the main factor driving businesses toward virtual organizations? It is the pace of business operations. Businesses now run at warp speed, demanding immediate responses--anywhere, anytime. Today, it's survival of the *fastest*, not the fittest. Using integrated computer and communications technologies, organizations are defined not by concrete walls or physical space, but by collaborative networks linking hundreds, thousands, or even tens of thousands of people together across continents.

Instructional Delivery of Workplace Skills

When in our history have we as educators had to deal with the fact that there has been more information produced in the last 30 years than during the previous 5,000 years? Given this fact and relating it to teaching InfoTech workplace skills, two questions emerge: How effectively are we delivering instruction today? Are advancing technologies and communication devices making teachers and schools obsolete?

I submit that they are not; but instead information, technology and communication advances are the driving forces behind *redefining* our roles and the learning modalities we use to deliver instruction. We can look at this set of realities as frightening or be resilient and work out a method of moving forward with gusto. Let's do the latter.

Traditional Learning versus Future Learning

Traditional learning today is similar to the classroom of our parents and grandparents. True, today's classrooms often include computers for students' use; but over the years, schools have installed computers willy-nilly, without much thought on how to integrate them into the curriculum. In reality, it boils down to this: Computers are a tool, not a subject. Further, computers are not a fixed thing, but a rapidly evolving concept.

Most teachers still don't know how to use computers in class. Better put, even teachers who know how to use computers have never been taught how *to teach* with them. Learning how to develop classroom strategies at the applications level has just not been a priority that schools have funded. It is, in fact, the most critical step needed

to move teachers to the next level. What has been a hard lesson to learn is now universally recognized. Computers are pretty much useless in learning situations unless a teacher intervenes—scripting careful lesson plans and guiding students along the way.

Greater Emphasis in MultiMedia and Distance Learning

Emerging technologies and communication devices are pointing the way to new and better delivery models that will serve to supplement traditional classroom instruction in some settings and replace it in others. The use of microwaves, satellites, and the Internet are only going to increase. With those telecommunications devices, multimedia and distance education—especially at the post-secondary level--holds a lot of promise.

Multimedia and distance learning can take the form of several types of non-traditional delivery models. For example, it can include using PowerPoint software to make "in-class multimedia presentations" complete with audio, visual, sound, clips, and transitions. Or it can be used to deliver a class to multiple classrooms across a large geographic area using Cable Interactive Instructional TV (IITV).

Somewhere in between and serving a global audience is "desktop video conferencing" where learners at learning sites around the world can see and talk with each other and share information, ideas, and research. Finally, the model that is currently sweeping education at all levels is "discovering learning on the Internet" via accessing information on Web pages, communicating with instructors through e-mail links, and using electronic conferencing systems.

Instruction by distance education using IITV, video conferencing, and on-line courses, has developed into a "preferred alternative" for millions of people who may be time- or place-bound and who seek education and training but prefer to do it *on their own*. Distance education is based on the recognition that different learning styles and needs of students require different teaching approaches. For example, some students prefer the dynamics of a "virtual" classroom; others prefer the personal attention of directed study, while another segment prefers the privacy and versatility of self-paced instruction on demand.

Picture a functioning "on-line campus". It is a place where, in small classes of 5 to 20 each, students share ideas, debate issues, and learn from one another and their instructors from wherever they happen to be—at home, at the office, on the road, or in any school classroom wired for the Internet. Offering courses through the World Wide Web (WWW) and on-line computing enables students to submit multimedia reports with digitized images and provides access to lecture notes, the syllabus, and assignment sheets in a variety of courses.

Using electronic conferencing systems, an integral part of online computing, allows instructors to post assignments, exchange messages and electronic documents with students, distribute class notes and point students to related web sites for further study and research. This system especially helps post-secondary faculty because it "makes office hours less important"; yet it individualizes instruction and gets feedback to students quicker.

Is an on-line education for everyone? Probably not. For example, many recent high school graduates are perhaps better off in a traditional campus setting, where

learning is combined with socializing. However, on-line education is growing for the college, university and working students with precious little time on their hands. In professional and technical fields especially, where people need to continually update and fine tune their workplace skills in emerging technologies and other areas, distance learning is the learning of choice.

It is prudent at this point to look at the other side of the coin relative to using the WWW because what drives educational technology must be sound pedagogy and intellectual vision, and not the other way around. Some would ask, "Is the Web a world of information or a swamp of trivia and distraction?"

Some Web sites are perfectly intelligent, conscientious efforts created by universities, governmental agencies, publishers, or organizations like the Smithsonian Institution or the Library of Congress. Others—the vast majority—feature celebrity gossip, sports, comics, jokes, shopping or pornography. This unregulated, unfiltered information raises troubling issues for education--from concerns about efficient time management to plagiarism or to sites that might be unreliable, unsafe, or unsuitable for students.

Although each of the networks that makes up the Internet is owned by a public or private organization, no single organization owns or controls the Internet. Because there is no *Internet, Inc.*, even more reason exists for educators to guide students in its use and application.

Implications for Business Education

If we analyze it, the major difference between most students and extremely successful students is the gap between what they *know* and what they *do*. Both groups have about the same knowledge base. Extremely successful students, however, are just better at doing what they should be doing. The same analogy applies if we substitute the words *worker* or *educator* for student. The gap between what we as educators know and what we do must be closed.

Technophobia reduces our effectiveness and credibility with students. If we aren't up to date on using electronic information and technologies and distance learning modalities, we need to do something about it. If we aren't committed to the need for students to locate, assess, and apply information *as opposed to* remembering things, we need to do something about it. If we haven't come to grips on how to deal with the ethical questions that "InfoTech" poses, we need to give greater thought to these issues.

In taking these actions to recognize our deficiencies and then to improve ourselves, we model to our students the values that will ensure their success and ours as InfoTech workers.